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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,485	09/10/2003	Lakshman S. Tamil	YOTTA1100-3	3440

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SPRINKLE IP LAW GROUP
1301 W. 25TH STREET
SUITE 408
AUSTIN, TX 78705

EXAMINER	
PASCAL, LESLIE C	
ART UNIT	**PAPER NUMBER**
2613	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/659,485	TAMIL, LAKSHMAN S.	
	Examiner	Art Unit	
	Leslie Pascal	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-62 and 68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-62 and 68* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. Applicant's election with traverse of figure 8 in the reply filed on 1-16-07 is acknowledged. The traversal is on the ground(s) that the "switching architecture is not limited by the particular implementations of the optical switch fabric shown in figures 6, 7 and 8. As explicitly noted in the present application, the configuration of the optical switch fabric 70 shown is exemplary only and modifications can be made without changing the switch fabric architecture" (page 16, bottom paragraph). Although it does not appear true that the modifications can be made without changing the switch fabric (especially between figures 6 and 7), it appears that the applicant is arguing that the switching means of figures 6, 7 and 8 are not critical. Figures 6, 7 and 8 are clearly different embodiments. See MPEP 808.03(b) the last paragraph. It would appear that the applicant is admitting that these are obvious variants. If the applicant states that the species are not obvious variants, the species requirement will be reinstated.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 24, 36, 52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. These claims claim a NX1 semiconductor optical amplifier. It is unclear what

this is. There is no SOA shown. Are there numerous SOA elements in this device or just one? Is the SOA providing the switching? If it is how is it providing switching?

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. . Claims 1-5, 8-10, 19-28, 31-33, 45-48, 50-54, 57-62 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong et al (6721315) in view of Jagannathan (6763192).

Xiong et al teach a plurality of inputs (510 or output of 545), plural outputs (DCG or 535) an optical switching matrix, which provide a unique path between inputs and outputs in dependence of how the switch is configured. In regard to claim 4, it would have been obvious to connect the switches so that only one input is connected to one output during a specific time interval since he is concerned with routing in order to avoid collision of packets. Although Xiong et al do not teach specifics about the switching matrix, Jagannathan teaches that it is well known in prior art systems to use a switching matrix which is made up of an array of SOAs (column 1, lines 29-37) which are fast. It would have been obvious to use an array of SOAs as taught by Jagannathan in the system of Xiong et al since SOAs operate at high speeds and would provide fast switching. In regard to claim 5, he teaches that the signals are WDM. In regard to

claim 8, he teaches routing scheduling (525, which obviously routes packets, since he is concerned with packet switching) which is connected to a switch controller (520), which controls the switch matrix. In regard to the switching elements having sufficient bandwidth to accommodate the wavelengths upon which data packets are transported, it would appear obvious, if not inherent, that in order for the system to work, there must be sufficient bandwidth. In regard to packet multiplexing, he teaches time division multiplexing (which would multiplex the packet, column 4, lines 21-25). In regard to communicating only one input to one output, it would have been obvious since it is well known to connect only devices that want to communicate with just each other. This has the benefit of sending lower power signals since the signals are not split between plural outputs. In regard to claims 24 and 52, see the above 112 first paragraph rejection. It is unclear from the specification what the element is. It would appear that Jagannathan would use SOAs in a switch it could be considered an N times 1 SOA. Further, it appears that the applicant feels that this is so well known that he does not have to disclose it. Xiong et al teach ingress (figure 14) and egress (figure 20) nodes, which are concerned with packet switching. He has a switch control unit (520) and routing processor (525). It is obvious that these means determine patters for delivery of the packets from ingress to egress and open and close the switches based on the determination, which provides for routing the packets on unique paths.

In regard to claims 45, he teaches ingress routers (figure 14) and egress routers (figure 20). In regard to claim 68, it is well known with switches to provide a multicast signal in a subscriber system in which plural subscribers are to receive the same signal.

Further, the applicant teaches that this is not critical since he also claims that signals are sent to only one output. In the applicant's remarks with regard to the species requirement, it appears that the applicant argues that the different embodiments are not critical.

6. Claims 11-12, 14-16, 19-21, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong et al (6721315) in view of Shiragaki et al (5757526)

Xiong et al teach a plurality of inputs (510), plural outputs (535) an optical switching matrix, which provide a unique path between inputs and outputs in dependence of how the switch is configured. In regard to claim 15, it would have been obvious to connect the switches so that only one input is connected to one output during a specific time interval since he is concerned with routing in order to avoid collision of packets. In regard to claim 19, he teaches routing scheduling (525, which obviously routes packets, since he is concerned with packet switching) which is connected to a switch controller (520), which controls the switch matrix. In regard to the switching elements having sufficient bandwidth to accommodate the wavelengths upon which data packets are transported, it would appear obvious, if not inherent, that in order for the system to work, there must be sufficient bandwidth. In regard to packet multiplexing, he teaches time division multiplexing (which would multiplex the packet, column 4, lines 21-25). In regard to communicating only one input to one output, it would have been obvious since it is well known to connect only devices that want to communicate with just each other. This has the benefit of sending lower power signals since the signals are not split between plural outputs.

Although Xiong et al do not teach specifics about the switching matrix, Shiragaki et al teaches that it is well known in prior art systems to use a switching matrix which is made up of plural matrix elements connected to each other (figure 10). It would have been obvious to use an array of matrix as taught by Shiragaki as the matrix switch of Xiong et al.

In regard to claims 45, he teaches ingress routers (figure 14) and egress routers (figure 20).

7. Claims 1-5, 8-10, 19-28, 31-34, 45-48, 50-54, 57-62 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong et al (6721315) in view of Athale (6501869).

Xiong et al teach a plurality of inputs (510), plural outputs (535) an optical switching matrix, which provide a unique path between inputs and outputs in dependence of how the switch is configured. In regard to claim 4, it would have been obvious to connect the switches so that only one input is connected to one output during a specific time interval since he is concerned with routing in order to avoid collision of packets (Xiong et al, column 6, lines 1-3). Although Xiong et al do not teach specifics about the switching matrix, Athale teaches that it is well known in prior art systems to use a switching matrix which is made up of an array of SOAs (column 3, lines 57-62) which are fast. It would have been obvious to use an array of SOAs as taught by Athale in the system of Xiong et al since SOAs operate at high speeds and would provide fast switching. In regard to claim 5, he teaches that the signals are WDM. In regard to claim 8, he teaches routing scheduling (525, which obviously routes packets) which is

connected to a switch controller (520), which controls the switch matrix. See figure 9 of Athale, which teaches a switching matrix that appears to be NX1. It would have been obvious to use switches that are SOAs in figure 9 in order to increase speed and reduce size of the switch of Xiong et al. In regard to claims 23-24, see the above 112 first paragraph rejection. It is unclear from the specification what the element is. It would appear that Jagannathan would use SOAs in a switch it could be considered an N times 1 SOA. Further, it appears that the applicant feels that this is so well known that he does not have to disclose it. In regard to claim 68, it is well known with switches to provide a multicast signal in a subscriber system in which plural subscribers are to receive the same signal. Further, the applicant teaches that this is not critical since he also claims that signals are sent to only one output. Xiong et al teach ingress (figure 14) and egress (figure 20) nodes, which are concerned with packet switching. He has a switch control unit (520) and routing processor (525). It is obvious that these means determine patters for delivery of the packets from ingress to egress and open and close the switches based on the determination, which provides for routing the packets on unique paths.

In regard to claims 45, he teaches ingress routers (figure 14) and egress routers (figure 20). In regard to claim 68, it is well known with switches to provide a multicast signal in a subscriber system in which plural subscribers are to receive the same signal. Further, the applicant teaches that this is not critical since he also claims that signals are sent to only one output.

8. Claims 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong et al (6721315) in view of Shiragaki et al (5757526) in view of Athale (6501869). Shiragaki et al teach plural matrix switches (1001-1024), which each have plural inputs and outputs, and a plurality of crosslink's (links linking the matrices). Although he does not teach specifics about what is in his matrix switches, Athale teaches that it is well known in prior art systems to use a switching matrix which is made up of an array of SOAs (column 3, lines 57-62) which are fast. It would have been obvious to use an array of SOAs as taught by Athale in the system of Shiragaki et al since SOAs operate at high speeds and would provide fast switching. In regard to claim 5, he teaches that the signals are WDM.

9. Claims 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Athale (6501869) and further in view of Antoniades et al (2002/0048066).

Although Xiong et al do not teach specifics about the conditioning means at the input and output of the switch, Antoniades et al teaches that it is well known to amply signals at the input and output in order to provide stronger signals and that it is obvious to filter them (paragraph 80). It would have been obvious to amplify the inputs and outputs in order to provide a stronger signals and it would have been obvious to filter the signals in order to reduce ripple.

10. Claims 6-7 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong et al (6721315) in view of Athale (6501869) and further in view of Antoniades et al (2002/0048066).

Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiong et al (6721315) in view of Shiragaki et al (5757526) in view of Antoniades et al (2002/0048066).

Although Xiong et al do not teach specifics about the conditioning means at the input and output of the switch, Antoniades et al teaches that it is well known to amply signals at the input and output in order to provide stronger signals and that it is obvious to filter them (paragraph 80). It would have been obvious to amplify the inputs and outputs in order to provide a stronger signals and it would have been obvious to filter the signals in order to reduce ripple.

11. Claims 35-36 and 39-40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Athale (6501869).

Athale et al teach an array of NX1 switching elements (704 of prior art figure 7 or top layer shown in figure 19) is well known. Each row could obviously be a NX1 switching element in figure 7. It is obvious that controlling the switching elements could create unique paths. In regard to claim 36, Athale teaches that it is well known in prior art systems to use a switching matrix which is made up of an array of SOAs (column 3, lines 57-62) which are fast. It would have been obvious to use an array of SOAs as taught by Athale in the system of Shiragaki et al since SOAs operate at high speeds and would provide fast switching. In regard to claim 5, he teaches that the signals are WDM. . In regard to the switching elements having sufficient bandwidth to accommodate the wavelengths upon which data packets are transported, it would

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leslie Pascal whose telephone number is 571-272-3032. The examiner can normally be reached on Monday- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leslie Pascal

Leslie Pascal
Primary Examiner
Art Unit 2613